

WHAT IS CLAIMED IS:

1. A surveying instrument, comprising a surveying instrument main unit which projects a measuring light to an object to be measured and measures a position based on a reflection light from the object to be measured and an operation device which is removably attached on the surveying instrument main unit, wherein said surveying instrument main unit comprises a distance measuring unit for emitting the measuring light and for measuring a distance, an image pickup unit for acquiring an image, a reflection mirror rotatably mounted and used for directing the measuring light toward the object to be measured, for directing the reflected light from the object to be measured toward a light receiving unit, and for directing the image in a projecting direction toward said image pickup unit, a detecting means for detecting a rotating position of said reflection mirror, and a control unit for controlling at least said distance measuring unit, said image pickup unit and the rotating position of said reflection mirror, and wherein said operation device comprises a display unit for displaying the image acquired by said image pickup unit.

2. A surveying instrument according to claim 1, wherein there is provided a leveling unit for adjusting tilt and for setting said surveying instrument main unit to a horizontal or a vertical position, and said operation device comprises operation switches for operating said leveling unit.

3. A surveying instrument according to claim 1, wherein radio communication can be performed between said

surveying instrument main unit and said operation device via transmitter/receivers, and said surveying instrument main unit can be operated from said operation device furnished separately.

4. A surveying instrument, comprising a surveying instrument main unit which projects a measuring light to an object to be measured and measures a position based on a reflection light from the object to be measured and an operation device, wherein said surveying instrument main unit comprises a distance measuring unit for emitting the measuring light and for measuring a distance, an image pickup unit for acquiring an image, a reflection mirror rotatably mounted and used for directing the measuring light toward the object to be measured, for directing the reflected light from the object to be measured toward a light receiving unit, and for directing the image in a projecting direction toward said image pickup unit, a detecting means for detecting a rotating position of said reflection mirror, a control unit for controlling at least said distance measuring unit, said image pickup unit and the rotating position of said reflection mirror, and a first transmitter/receiver for receiving an operation signal for operation via said control unit and for transmitting an image data acquired by said image pickup unit, and wherein said operation device comprises a display unit and an operation unit to be operated according to programs, and a second transmitter/receiver being enable to operate said surveying instrument main unit from the operation device, enable to display the image data acquired by said image pickup unit, and capable to perform communication to and from

said first transmitter/receiver.

5. A surveying instrument according to claim 4, wherein said instrument comprises a leveling unit for adjusting tilt and for setting said surveying instrument main unit to a horizontal or a vertical position, and said leveling unit can be controlled by said operation device.

6. A surveying instrument according to claim 4, wherein said operation device comprises an operation unit to be operated according to programs, and a display unit for displaying the image data, said programs are provided with a function to indicate operation procedure for surveying operation to said display unit, and said surveying instrument main unit is controlled according to the displayed operating procedure.

7. A surveying instrument according to claim 4, wherein said first and said second transmitter/receivers transmit and receive data to and from each other, in which data for communication are established based on a common protocol.

8. A surveying instrument according to claim 1 or 4, wherein a distance measuring data and an image data with respect to the object to be measured are acquired from two or more directions, and a 3-dimensional image of the object to be measured is composed based on the distance measuring data and the image data.